

ABSTRACT OF THE DISCLOSURE

In accordance with a method for single-carrier and multi-carrier reception, the following steps are executed: downconverting a received RF signal to in-phase (I) and quadrature (Q) channel signals each containing a plurality of sub-carriers at a low intermediate frequency (low-IF) and, if required, one sub-carrier or a single carrier centered around 0 Hz; filtering interfering signals outside of a frequency band of interest with analog lowpass filters in the I and Q channels; converting the I and Q channel signals to digital representations thereof, in the multi-carrier reception case, separating sub-carriers that are images of one another by quadrature downmixing the digital representations of the I and Q channel signals to baseband in the digital domain; and digitally adding or subtracting resulting I and Q signals to obtain one or both of an upper sideband and a lower sideband containing desired ones of the multi-carriers. For a symmetric multi-carrier reception case the step of downconverting includes a step of tuning a local oscillator to a center frequency of a group of sub-carriers, while for an asymmetric multi-carrier reception case the step of downconverting includes a step of tuning a local oscillator between a middlemost sub-carrier and its interfering adjacent channel.